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DEVELOPMENAL ALEXIA (CONGENITAL WORD BLINDNESS).[1]

By Edward Jackson, M.D.,
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Congenital word blindness is the term used by Hinshelwood and others to indicate inability, or great difficulty, in learning to read. The term seems inappropriate for a condition that exists with normal visual acuteness and normal fields of vision. Indeed, Hinshelwood maintains "that the diagnosis of congenital word blindness can only be made with confidence when we are dealing with a child with healthy eyes and good visual acuity." The word alexia, inability to read, carries no implication of imperfect vision, and seems, therefore, more appropriate. The condition is essentially a failure of development, or a delayed development of a group of co-ordinations, or a co-ordinating center essential to the recognition of written or printed characters. The term *developmental alexia* is, therefore, suggested as most specifically indicating the condition under consideration.

Developmental alexia was first described as a distinct abnormal condition by Hinshelwood in 1900. He pointed out most clearly its similarity to alexia, or so-called word blindness, arising from disease in later life. He reported two cases he had observed, and cited two previously mentioned by Morgan and Bastian, who had failed to recognize their full significance. In 1901 Nettleship reported five cases, some of which he had observed as early as 1882, and seems to have studied rather thoroughly; without, however, recognizing their relation to the well-defined condition of acquired alexia.

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[1] Read before the Denver Academy of Medicine.

Other cases have been reported, including one from this country by Bruner, of Cleveland, until, with the two which I wish here to report, nineteen have been placed on record. It is a notable fact that, although the condition is not one of impaired vision, every case thus far reported has come under observation seeking relief for a supposed visual defect.

CASE A.—M. D., a girl, aged eleven years, came April 21, 1900, for headache, eye-strain, and special difficulty with reading. Although intelligent and well advanced in most studies, for her age, she has always had trouble with her reading. A disinclination to read letters has characterized her from the first. Her mother says "she is not fond of reading, prefers sewing." Her teachers have requested that she should practice reading at home. She hesitates and miscalls letters of the larger sizes on the test card, as much as the smaller letters. Of A, which she could not name, she said it "looks like V upside down." When reminded that it is A, she said, "Oh! yes, A," as if it had escaped her memory. A certain letter she called O, and when told it was not O, she did not look at the letter, but looked away, as if trying to remember, then said suddenly, "Oh! D." When trying to remember the letters, she sometimes succeeded in doing so by tracing their form in the air with her finger. She had no trouble in reading figures and was good at arithmetic. There was no difficulty about spelling words spoken to her. She was in the fourth grade at school.

In April, 1901, she continued to have much the same difficulty with reading and with recognizing letters, although she had made her additional grade, and was studying German, principally by ear. Special attention was paid to her reading and from this time it began to improve.

February, 1904. She reads the letters correctly without any of her former hesitation. She now enjoys reading, and reads a good deal.

January, 1905. Her ability to read seems quite normal. Her hyperopia has increased to 2.50 D. in each eye, with 0.25 D. of astigmia added.

October 11, 1904. Case B.—F. G. H., a boy, aged seven, is brought because his teacher says "he cannot see letters either near or far." After a year at school, he only recognizes with certainty the letters O and H. In attempting to name letters, he traces out the form of the letter with his finger. He does better with figures. He has low hyperopia, R. 0.87 D., L. O. 75 D. and full vision in each eye, with fifteen dioptres of accommodation, or over. Except in the matter of reading, he seems bright, intelligent, and well developed for his age. The character of his difficulty was explained to his mother with instruction as to special training in the recognition of letters.

February 18th, she writes that he "is making good progress with his reading, and does not seem to have any difficulty with figures."

The following cases previously reported are here given in abstract in the order of their publication:

By Morgan (*British Medical Journal*, Nov. 7, 1896).

CASE I.—Boy, aged fourteen years. Able to read only words of one syllable, after seven years at school. He had little or no difficulty with numerals.

By Bastian (*Aphasia and Other Speech Defects*, 1898).

CASE II.—Boy aged eighteen. Had learned to read with great difficulty. Very little trouble with arithmetic.

By Hinshelwood (*The Lancet*, May 26, 1900).

CASE III.—Boy, aged eleven years. After four years at school could recognize only a few letters; unable to read words of two letters. Less defective, though not perfect, in reading numerals. No difficulty in recognizing faces and pictures. Could repeat the alphabet and count correctly. Could spell short words given orally. Knew his school reader by heart, and could do simple sums of arithmetic.

CASE IV.—Boy, aged ten years. Knew the alphabet, could read common short words, others he had to spell out. Never read for pleasure. No difficulty with figures. Did well in school except in reading. Made progress under special instruction.

By Nettleship (*Ophthalmic Review*, March, 1901).

CASE V.—Boy, aged eleven years, first seen in 1882. Vision 20/20 and good accommodation. Reading was extremely difficult, in spite of unusual pains taken to teach him to read. Could pronounce words spelt to him, and could spell words spoken to him. An intelligent, quiet boy, fond of carpentering and planning. Not seen again.

CASE VI.—Boy, aged six years, seen in 1882. Vision 20/20. Could read music well and showed facility in drawing. Could read print only by spelling it out. His manner of reading was "more suggestive of incomprehension than bad sight" H. 2 D. After "an enormous amount of patience and perseverance," he learned to read easily, both to himself and aloud. He became a lawyer.

CASE VII.—Boy, aged nine years. Vision 6/6. Backward in reading, though in other respects not at all behind other boys of his age H. 1.5 D.

CASE VIII.—Man, aged twenty-three years. Vision 6/5 in each eye. He had always been a "slow reader and bad speller, and unable to do paper work." Had been taught orally, though he was able to read very slowly by taking pains. Remembered words by sound. He had hyperopic astigmia 1.25 D., for which he had worn glasses since eight years old.

CASE IX.—Woman, aged twenty-one years. Vision 6/5. Such difficulty in reading that she had been taught almost entirely by ear. She could not easily pass from one line to the next apparently because she could not remember the appearance of the words in the line she had just been looking at. No trouble with needlework. She belonged to a talented, highly educated family, the only one who could not read well, although two brothers stammered.

By Hinshelwood (*Ophthalmic Review*, April, 1902).

CASE X.—Girl, aged ten years. Vision good. After four years of school only read the book of the first grade, and that with the greatest difficulty. It took nine months of hard work to learn imperfectly the alphabet. She had to spell out all but the smallest common words. No other difficulty with her education. Memory good. Spelled well words she could not recognize by sight. No difficulty with learning to read figures, or with arithmetic. Wrote fairly to dictation. Always healthy, except severe illness with measles, whooping-cough and pneumonia when four years of age.

CASE XI.—Boy, aged seven years. Vision normal. At school three years could not be taught to read. Did not know all the letters of the alphabet; but if given time could correct his mistakes. Could scarcely read a single word without spelling it out, and then would not recognize it a line or two farther on. Auditory memory was excellent. For a time he concealed his inability to read by learning his reading lessons by heart. He could spell fairly and write to dictation. He read figures fluently up to twenty, but beyond that was rather uncertain.

By Lechner, C. S. (*Weekbl. v. Gen*, Aug. 1, 1903).

CASE XII.—Boy, aged thirteen years. Vision 5/4. Emmetropic. After five years at school knows only a few letters of the alphabet well, and some not at all. Can recognize few words with one syllable, but can say the alphabet quickly and perfectly. Fairly advanced with arithmetic. Family and personal history good.

By O. Wernicke, Buenos Ayres (*Centralblatt f. praktische Augenheilkunde*, Sept. 1903).

CASE XIII.—Girl, aged nineteen years. Vision 5/4. In spite of great efforts to learn, could only read letter by letter. Read figures readily. Spoke two languages correctly. Somewhat hysterical, otherwise well, with good family history.

CASE XIV.—Boy, aged ten years. Vision 5/4. He recognized separate letters slowly and with difficulty, but connected reading was impossible. Could read numbers perfectly, and recognize geometrical figures, playing cards, etc. Could not write well from dictation; but could repeat a whole paragraph several minutes after it had been read to him. Always sickly. Father intemperate; died insane.

CASE XV.—Boy, aged ten years. Vision normal. Incapable of learning to read. This case had been seen by Wernicke some years before and no notes of it had been preserved.

By Hinshelwood (*Ophthalmoscope*, October, 1904).

CASE XVI.—Boy, aged twelve. Vision normal. In school seven years, could not read more than two or three words without stopping to spell them out. Spelled very well, even the words he failed to recognize at sight. Wrote at dictation with few mistakes. Had for a time concealed his defect by learning his reading lessons by heart. Read figures fluently and was good at arithmetic. Advised short lessons in reading daily by himself and in two years had made "splendid progress."

By Bruner (*Ophthalmology*, January, 1905).

CASE XVII.—Boy, aged nine years. Vision 6/6. Could read only some short common words of one syllable. Had no special trouble in learning the alphabet, but very slow in learning to read. Considerable trouble with written arithmetic, but very good in mental arithmetic. Had very good memory for what was read or told to him. Was of slow mental and physical development.

CASES XVIII. and XIX. would be cases A and B, as reported above. Studying this group of cases, as a whole, certain deductions seem to be justified. The number of cases encountered by single observers indicates that it is not a very rare condition. These cases have simply passed unnoticed or without full appreciation. Sym, in reviewing Wernicke's cases, mentions having seen one. A teacher to whom I spoke of the condition told me of another bright boy to whom she could not teach the alphabet. For three months she concentrated her efforts upon the first three letters, but at the end of that time he had not learned them and left school.

The greater frequency of the defect among boys seems rather striking, including the one just mentioned—sixteen boys to four girls. It has been suggested that this might be accounted for by more general attention to the education of boys, but the disproportion is so great that such an explanation seems insufficient. One patient had an intemperate father, who died insane, and a weak-minded elder brother. Two were somewhat slow in general development, but the great majority have appeared to be healthy and well developed, both physically and mentally.

In every case thus reported the vision has been normal and the eyes healthy. Where the refraction has been stated, it has been hyperopic in every instance, sometimes with astigmia of low degree. It is possible that, in some cases, the hyperopia may have added a difficulty of some practical importance, to be overcome before the child could read. It is well known that hyperopia does predispose to poor scholarship in general. The effort of accommodation entailed certainly detracts from the patient's attention to the lesson. The hyperopia in case A was quite sufficient to have such an effect. Even the very moderate degree in Case B had given rise to headaches, which were entirely relieved by the wearing of correcting glasses. In both these cases the improvement was noticeably more rapid after the glasses were worn.

But the influence of hyperopia must be of very minor importance. In some cases correcting lenses had been worn without noticeable effect on the alexia, and in others the effort of accommodation had not interfered with other studies such as mathematics, painting, music, sewing, etc., which require almost equal effort of accommodation. Clearly, we have to deal with a specific defect of brain development. This has been commonly spoken of as a defective memory for the visual impressions of letters and words—the absence of a centre for word memory. It is very likely that this is the best explanation for some cases. Notably those that are unable to learn to recognize by sight the different letters of the alphabet.

But in other cases it is probable that the defect is of somewhat different character. Spoken language is generally pretty well acquired before the effort to understand and employ its written symbols is commenced. Any lack of co-ordination between visual centres and those already developed to serve the faculties of hearing and speech would cause alexia, even though the geometric form of the letters could be recognized and remembered without especial difficulty. The co-ordinations required for the comprehension and use of language are extremely complex, and the failure of these to connect with the visual impressions at any point would be a sufficient explanation of these cases.

Treatment. If it be true that developmental alexia may arise from more than one kind of defect, different methods of meeting it will be appropriate to different cases. Nettleship suggests that the best way of detecting this form of alexia, and deciding to what extent it can be improved, is to stick to the old plan of teaching children their letters as early as possible. This early teaching of the alphabet, supplemented by such exercises as reproducing the forms of letters with the pencil, cutting them out from paper, modelling them in clay, etc., will probably be most effective where the deficiency is really one of memory for the forms of letters.

Where, however, it is failure to co-ordinate the written or printed symbols with the sounds and ideas that they are intended to stand for, such exercises as the reading aloud, or following with the printed book the reading of another person, or writing from dictation, will be of most value.

In any case the study must be pursued largely outside of classes; the child must have special instruction, and must not be subjected to the discouragement arising from failure to do as well as others, or from being subjected to the ridicule of companions. With proper treatment the prospect of removing this difficulty is generally very good. In one of my cases the cure is already complete; in the other, it is well started, with every prospect of an early disappearance of the defect. In many cases it is probably only a question of delayed development, so that normal facility would be reached later without special training.

In only two of the cases had the patient reached adult life with a very marked degree of alexia remaining. But we have to recognize that the defect may be permanent, and the best that can be done for the patient will be to cease efforts to learn to read when these can properly be regarded as hopeless, and to turn the attention to training by the ear; and in other ways, to supplement the necessarily defective powers of the individual.

CLINICAL OBSERVATIONS ON ULCER OF THE STOMACH.[1]

BY J. HENRY SCHROEDER, M.D.,
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IT may be said of ulcer of the stomach that it is a disease which is only rarely, in all its stages, accompanied by symptoms that might be called typical; that its course is uncertain, and that treatment does not always lead to cure of the condition.

I contribute, therefore, the observations in the following case because of the several, and some unusual, complications which accompanied the ulcer; also because of the well-defined clinical course, and finally, the prompt recovery of the patient. In discussing some of the features of this case, and of the treatment of the condition in general, I would recall some facts which are of considerable interest and deserve special attention.

Patient, Mr. E., aged thirty-three years, merchant by occupation, came under my care December 2, 1904, complaining of stomach trouble of long standing.

The history taken at that time is as follows:

Family history: Negative.

Patients previous history: Negative. Has never been addicted to alcoholics. Tobacco has been used with moderation.

Onset of the present condition: Ten years ago, while travelling, patient first noticed signs of indigestion. The condition has steadily become worse, notwithstanding almost constant medical treatment. The patient has lost about twenty pounds in weight during that time.

Appetite: Fairly good, but the patient is afraid to eat because of the pain the food, as a rule, produces.

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[1] Read before the Academy of Medicine, Cincinnati, October 30, 1905.